

Serial No. 09/738,070

IN THE CLAIMS:

Please replace the previous version of the claims with the following clean version, wherein claims 1, 6, 7, and 10 incorporate new amendments thereto, and claims 11-15 have been added.

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cont.

1. (Once Amended) An actuator comprising:
a displacement element for generating a specific displacement;
a displacement expander for transmitting the displacement of said displacement element and expanding the displacement;
a transmitter for transmitting the displacement expanded by said displacement expander to a driven member;
a presser for pressing said transmitter against the driven member; and
a driver for driving the displacement element such that oscillations of said displacement element are restrained by oscillations of said displacement expander.

2. An actuator as claimed in claim 1, wherein the spring constant of said displacement expander is less than the spring constant of said displacement element.

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3. An actuator as claimed in claim 2, wherein said displacement element is driven by a drive signal of a frequency near the simple natural frequency of said displacement expander.

4. An actuator as claimed in claim 1, wherein said displacement element is driven by a drive signal of a frequency near the simple natural frequency of said displacement expander.

5. An actuator as claimed in claim 1, wherein said displacement element is a laminate-type piezoelectric element.

6. (Once Amended) An actuator comprising:
a first displacement element for generating a specific displacement;
a second displacement element for generating a specific displacement of which a direction is cross to a direction of the specific displacement of said first displacement element;
a first displacement expander, which is connected in series to said first displacement element, for transmitting the displacement of said first displacement element and expanding the displacement;

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cont.

a second displacement expander, which is connected in series to said second displacement element, for transmitting the displacement of said second displacement element and expanding the displacement;

a tip member, which is arranged at an intersection end of said first and second displacement elements, for transmitting the displacement expanded by said first and second displacement expanders to a driven member;

a presser for pressing said tip against the driven member; and

a driver for driving each of said first and second displacement elements such that oscillations of said first and second displacement elements are restrained by oscillations of said first and second displacement expanders.

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7. (Once Amended) An actuator as claimed in claim 6, wherein the spring constants of said first and second displacement expanders are respectively less than the spring constants of said first and displacement elements.

8. An actuator as claimed in claim 7, wherein said first and second displacement elements are respectively driven by drive signals of a frequency near the simple natural frequency of said first and second displacement expanders.

9. An actuator as claimed in claim 6, wherein said first and second displacement elements are respectively driven by drive signals of a frequency near the simple natural frequency of said first and second displacement expanders.

10. (Once Amended) An actuator as claimed in claim 6, wherein said first and second displacement elements are respectively laminate-type piezoelectric elements.

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11. (New) An actuator comprising:
a displacement element for generating a specific displacement;
a displacement expander for transmitting the displacement of said displacement element and expanding the displacement, said displacement expander having elasticity in the direction of said displacement;

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a transmitter for transmitting the displacement expanded by said displacement expander to a driven member;

a presser for pressing said transmitter against the driven member; and

a driver for driving said displacement element such that said specific displacement of said displacement element is restrained by contractions or expansions of said displacement expander.

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12. (New) An actuator as claimed in claim 11, wherein the spring constant of said displacement expander is less than the spring constant of said displacement element.

13. (New) An actuator as claimed in claim 12, wherein said displacement element is driven by a drive signal of a frequency near the simple natural frequency of said displacement expander.

14. (New) An actuator as claimed in claim 11, wherein said displacement element is driven by a drive signal of a frequency near the simple natural frequency of said displacement expander.

15. (New) An actuator as claimed in claim 11, wherein said displacement element is a laminate-type piezoelectric element.